

# ISO 17356-3:2005-11 (E)

## Road vehicles - Open interface for embedded automotive applications - Part 3: OSEK/VDX Operating System (OS)

---

<b>Contents</b>		<b>Page</b>
Foreword .....		v
Introduction .....		vi
1	Scope .....	1
2	Normative references .....	1
3	Architecture of the operating system "OS" .....	1
3.1	Processing levels .....	1
3.2	Conformance classes .....	3
3.3	Relationship between OS and OSEKtime OS .....	4
4	Task management .....	5
4.1	Task concept .....	5
4.2	Task state model .....	5
4.3	Activating a task .....	8
4.4	Task switching mechanism .....	8
4.5	Task priority .....	8
4.6	Scheduling policy .....	9
4.7	Termination of tasks .....	12
5	Application modes .....	12
5.1	General .....	12
5.2	Scope of application modes .....	12
5.3	Start-up performance .....	13
5.4	Support for application modes .....	13
6	Interrupt processing .....	13
6.1	General .....	13
7	Event mechanism .....	14
8	Resource management .....	16
8.1	General .....	16
8.2	Behaviour during access to occupied resources .....	16
8.3	Restrictions when using resources .....	17
8.4	Scheduler as a resource .....	17
8.5	General problems with synchronization mechanisms .....	17
8.6	Priority Ceiling Protocol .....	18
8.7	Priority Ceiling Protocol with extensions for interrupt levels .....	19
8.8	Internal resources .....	21
9	Alarms .....	22
9.1	General .....	22
9.2	Counters .....	22
9.3	Alarm management .....	22
9.4	Alarm-callback routines .....	23
10	Messages .....	24

11	<b>Error handling, tracing and debugging .....</b>	<b>24</b>
11.1	<b>Hook routines .....</b>	<b>24</b>
11.2	<b>Error handling .....</b>	<b>25</b>
11.3	<b>System start-up .....</b>	<b>26</b>
11.4	<b>System shutdown .....</b>	<b>28</b>
11.5	<b>Debugging .....</b>	<b>28</b>
12	<b>Description of system services .....</b>	<b>29</b>
12.1	<b>Definition of system objects .....</b>	<b>29</b>
12.2	<b>Conventions .....</b>	<b>29</b>
13	<b>Specification of OS services .....</b>	<b>31</b>
13.1	<b>Basics .....</b>	<b>31</b>
13.2	<b>Common data types .....</b>	<b>32</b>
13.3	<b>Task management .....</b>	<b>33</b>
13.4	<b>Interrupt handling .....</b>	<b>38</b>
13.5	<b>Resource management .....</b>	<b>41</b>
13.6	<b>Event control .....</b>	<b>43</b>
13.7	<b>Alarms .....</b>	<b>46</b>
13.8	<b>OS execution control .....</b>	<b>50</b>
13.9	<b>Hook routines .....</b>	<b>51</b>
14	<b>Implementation- and application-specific topics .....</b>	<b>54</b>
14.1	<b>General .....</b>	<b>54</b>
14.2	<b>Implementation hints .....</b>	<b>54</b>
14.3	<b>Application design hints .....</b>	<b>56</b>
14.4	<b>Implementation-specific tools .....</b>	<b>60</b>